
Table of Contents

Coding Plug

Subject	Page
Coding Plug	3
Coding Plug Identification	3
Ordering Replacement Coding Plug	4
Coding Plug Overview	4
Coding Plug Identification - E32/E34	4
From 2/89 to 9/91 Production	5
9/90 Revision	5
E32/34 as of 9/91 (1992 Model Year)	5
E36 Instrument Cluster	5
318i/is, 325i/is and M3.	5
318ti and Z3 Roadster	6
Test No. 09	6
Federal Odometer Disclosure Requirement 92-513	7
Review Questions	8

Coding Plug

Model: E23, E24, E28, E30, E32, E34, E36

Production: 9/87 - 2002

OBJECTIVES

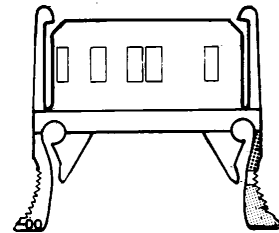
After completion of this module you will be able to:

- Explain the purpose of a Coding Plug
- Understand the changes made to coding plugs
- Describe how stored vehicle data can be transferred to a new cluster or plug
- Describe the importance of odometer disclosure

Coding Plug

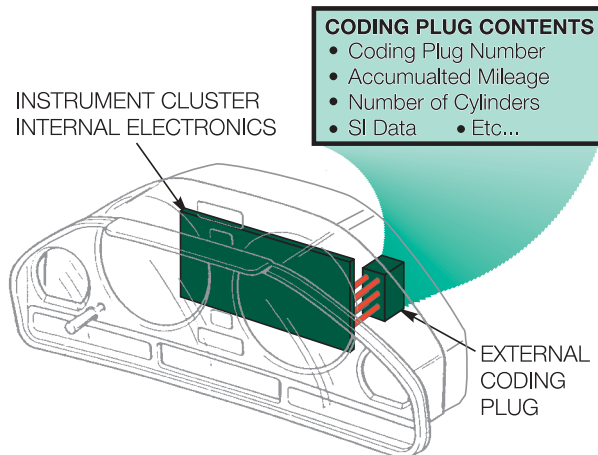
A coding plug is a mechanically keyed or electronically coded device/plug, that can open or bridge circuits in a particular component to allow it to operate differently dependent on the type of plug installed/inserted.

BMW used a mechanical coding plug which simply opened or bridged circuits to assign market specific data to the instrument cluster of the E23, E24, E28 and E30 vehicles. With the introduction of the E32 in 1988 and the E34 in 1989, electronic coding plugs were utilized in the instrument cluster.



The change to an electronic coding plug which allowed market specific data to be assigned to the instrument cluster also contained Non-Volatile Random Access Memory (NV-RAM), which provided an ability to retain vehicle specific data in the plug such as:

- Vehicle Identification Number
- Accumulated Mileage
- Service Indicator Information
- Coding plug number
- Fuel Tank Size data
- Etc, Etc.



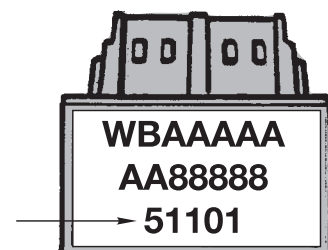
By using a plug that is able to store data, the instrument cluster can be replaced without losing vehicle mileage, unless the coding plug is damaged.

With the introduction of vehicles like the E31 and E38 the instrument cluster no longer utilizes a coding plug since it receives most of its input signals directly from a control module, EKM (E31) or IKE (E38), this allows vehicle data to be directly stored in the control module and the instrument cluster is no longer coded. For these vehicles and newer models, market specific data is stored in the control module (EKM or IKE). By coding these modules by way of ZCS coding (refer to ZCS coding) market specific data is assigned/released to the control module.

Coding Plug Identification

Each coding plug features a stored 5-digit numerical code that varies between model/equipment, etc.

The code can be read out through the instrument cluster display by pressing the odometer reset button and turning the ignition switch to KL R. The coding plug number will be display in the instrument cluster matrix.



If this is no longer possible, the coding plug must be removed in order to read the code on the label of the coding plug.

Ordering Replacement Coding Plug

Replacement coding plugs for the redesigned E32/E34 cluster are clearly identified in **Parts Bulletin 62 01 02**. The coding plugs are received pre-coded and installing them automatically codes the cluster.

The first digits of the 5-digit code is changed on coding plugs when they are replaced.

	E32	E34
ORIGINAL NUMBER	1 1101	2 0101
REPLACEMENT NUMBER	5 1101	4 0101

Note: It is not possible to input the mileage reading, the service interval status and the chassis number into the replacement coding plug.

Coding Plug Overview

Since the introduction of the E32 several versions of instrument cluster coding plugs have been introduced, this section will provide an overview of the different versions, plus provide identification and coding information.

Coding Plug Identification - E32/E34

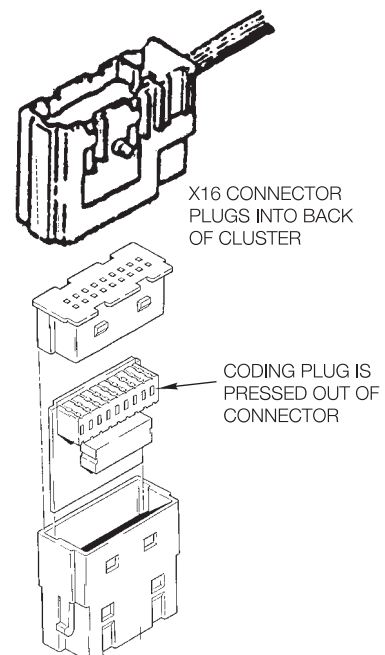
The E32/E34 Instrument cluster coding plugs progressed through three variations of design.

Start of production up to 2/89.

The original E32/E34 instrument cluster coding plug was installed in the wiring harness connector (X16) which plugged into the instrument cluster. This plug contained all of the vehicle specific coding data for the instrument cluster and retained accumulated mileage and service interval information.

In the event that the instrument cluster must be replaced the coding plug is reused with the new cluster. By reusing the old/original plug the mileage in the odometer does not change, since the coding plug is able to retain the information.

- If the coding plug must be replaced, the total mileage and Service Interval information will be lost. Refer to **SI 62 02 88 (1597)** for information regarding coding plug replacement.



-
- Replacement coding plugs pre-coded by part number and are available from the parts department. Only order replacement instrument cluster coding plugs as indicated in **Parts Bulletin 62 01 02**.

From 2/89 to 9/91 Production

The E32/E34 instrument cluster and coding plug were redesigned in 2/89. As a result of this redesign the coding plug became an external component and plugged directly into the back of the instrument cluster, no longer part of the X16 connector.

Even though the plug can be removed without disconnecting the harness, all power must be disconnected from the cluster prior to removal, to prevent data loss from the coding plug. Reference **SI 62 06 91 (3284)** regarding coding plug removal.

9/90 Revision

In 9/90 the cluster was slightly redesigned again to address changes in the fuel gauge and some minor physical changes. The electronics of the cluster as well as the coding plug were upgraded considerably.

The coding plug and the instrument cluster are not compatible with the earlier redesign. The printed circuit board and the coding plug are colored blue for distinction over the components of the earlier redesigned cluster.

The new blue coding plug is also keyed differently to prevent unintentional exchange with the earlier coding plug. Reference **SI 62 01 91 (3210)** for additional information.

E32/34 as of 9/91 (1992 Model Year)

After 9/91 production, the instrument cluster coding plug can be coded using the ZCS function within CIP by selecting the specific module via the DISplus/GT1/SSS. The physical characteristics of the coding plug did not change.

A replacement uncoded coding plug (P/N 62 11 8 359 368) must be coded after installation into the instrument cluster, refer to ZCS coding section in this manual.

A precoded coding plug (P/N 62 11 8 359 369) is available for this cluster as well. When ordering include with your order the following information:

- ZCS code for the vehicle
- VIN for the vehicle

E36 Instrument Cluster

318i/is, 325i/is and M3.

The instrument cluster for these vehicles does not utilize a coding plug. The entire cluster is coded model specific, by using the ZCS coding procedure in CIP by selecting E36.

Recently, a new procedure has been made available that transfers the accumulated mileage and service interval data from a defective instrument cluster into a new replacement cluster for these vehicles.

This alternative procedure is not meant to replace the existing procedure utilizing the Federal Odometer Disclosure label. It is only meant for sensitive “dissatisfied customer” situations. Reference **SI B62 02 95** for additional information.

318ti and Z3 Roadster

These vehicles are equipped with an instrument cluster that is not connected to the diagnostic link and therefore can not be coded using ZCS. Since the cluster can not be coded, these vehicles require a coding plug for vehicle specific coding.

Like the E32/E34, the coding plug is able to store the accumulated mileage and service interval information. In addition to storing the data on the coding plug the instrument cluster is also able to internally store the data on an EEPROM (Electrically Erasable Programmable Read Only Memory), as redundant back. If the cluster main processor or coding plug need to be replaced, the mileage and SI Indicator data can be transferred to the new component using the clusters test step procedure #9. higher value overwrites the lower.

Test No. 09

DISTANCE READING Test - 09 allows the total stored mileage to be updated if one of the storage components has to be replaced. The test step will be used if the manipulation dot is illuminated in the cluster display. This test step will identify which component has the lower mileage.

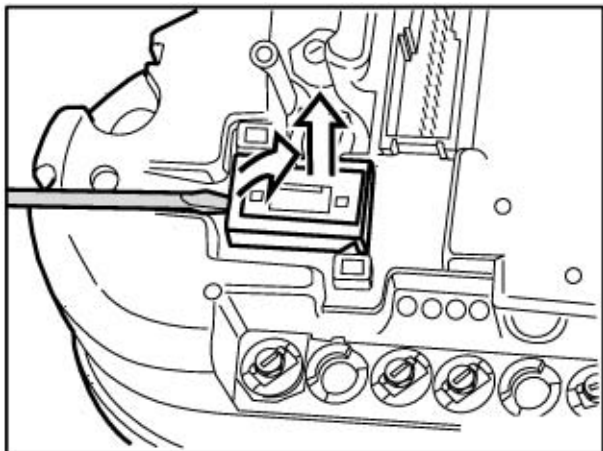
Display Example:

012654 I - Indicates the mileage in the internal EEPROM is lower than the mileage stored in the coding plug.

000325 E - Indicates the mileage in the external coding plug is lower than the total mileage stored in the internal EEPROM.

Pressing the reset button for 4 seconds will over write the lower mileage with the higher mileage and cancel the manipulation dot. The SI data will also be transferred at the same time.

To remove the coding plug from the instrument cluster first remove the snap off cover. Pull the coding plug from the connector in the cluster.



Federal Odometer Disclosure Requirement 92-513

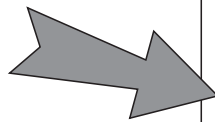
The Federal Odometer Disclosure Requirement 92-513 states that, whenever an instrument cluster component is replaced that brings the odometer back to 0 (coding plug), the mileage prior to its replacement along with the date that the replacement occurred must be recorded on the left door frame of the vehicle. Reference **SI B62 01 95 (4172)** for additional information.

A permanent label to record this information is included with every coding plug (except E36/5 and E36/7) that is ordered from the parts department.

Additional labels can be ordered separately under Part Number 89 89 1 000 500.

ODOMETER NOTICE	
ODOMETER HAS BEEN REPAIRED OR REPLACED AND SET TO ZERO ON:	
DATE	
PRIOR TO REPAIR OR REPLACEMENT MILEAGE WAS	
MILEAGE	
OWNER OR AGENT UNLAWFUL TO REMOVE OR ALTER Federal Law 92-513 Title IV Sec.407	

ADD MILEAGE OF VEHICLE AND DATE WHEN THE CLUSTER WAS REPLACED IN SERVICE WARRANTY INFORMATION BOOKLET



Speedometer (Odometer Memory) changed:
Mileage <u>14,671</u>
Date <u>4/5/95</u>

It is the responsibility of the person making this replacement to record this information on the vehicle and in the Owner's Service Warranty Information Booklet.

Strict compliance with this requirement must be followed through with the following vehicles if mileage is reset to 0:

- E32/E34 All instrument Clusters
- E36 - 318i,js, 325i,js and M3. Reference **SI B62 02 95** regarding alternative E36 odometer reading transfer.



Workshop Exercise

Locate and review all SIBs referenced in this module using TIS.

Review Questions

1. *What is a coding plug?*

2. *Can coding plugs be interchanged from model to model? If not, why?*

3. *What procedure must be followed if vehicle mileage can not be updated/ re-entered after replacing a coding plug?*

4. *Are coding plugs still used in current production vehicles? If not, what replaced it?*
